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ABSTRACT

Articles submitted to newspapers by 100 agents of the North Carolina Agricultural Service were studied to determine the readability or reading ease of the articles, and to determine the extent to which certain selected factors were associated with reading ease scores. Five of each of the respondents' newspaper articles were randomly selected, and 100-word samples were randomly chosen from each of the five articles. The Farr-Jenkins-Paterson Reading Ease Formula was used to determine reading ease or readability. Personal data and agents' attitudes toward writing and the use of newspapers as a teaching aid were collected by means of mailed questionnaires. The data were analyzed by use of descriptive statistical methods, according to tenure in Extension, education, reading habits, writing experience, and regard for the newspaper article as a teaching method. Findings are that: (1) only 7 of the 100 agents wrote in the "standard" range; (2) the agent's field of education affects his ability to write at a relatively high level of readability; (3) a small number of agents had received writing training; and (4) the agents place a relatively high value on the use of newspaper articles as a teaching method. (DB)

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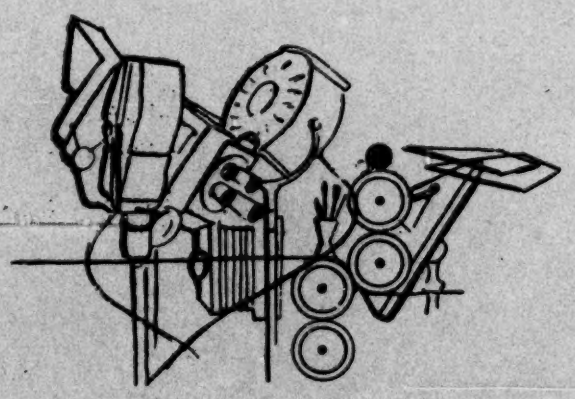
Readability of Newspaper Articles Written by County Agricultural Extension Agents



REPORT NO. 9

DEPARTMENT OF AGRICULTURAL INFORMATION

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Readability of Newspaper Articles

Written by County Agricultural Extension Agents

Jefferson Woodrow Upchurch, Jr.

Assistant News Editor

Report No. 9

Department of Agricultural Information

N. C. State University at Raleigh

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Contents

Introduction.....1
Purpose of the Study.....1
Statement of the Problem.....1
Objectives.....3
Scope and Procedure.....4
Collection and Analysis of Data.....5

Conceptual Framework.....6
Communication.....7
Readability.....9
Principles of Writing Readably.....11
Implications for this Study.....12

General Characteristics of Agents.....14
Tenure in Extension.....14
Education Status and Writing Training.....15
Reading Habits.....18
Difficulty and Frequency of Writing.....21
The Newspaper Article as a Teaching Method..23

Factors Associated with Reading Ease Scores of Newspaper Articles.....25
Determination of Reading Ease Scores.....25
Association of Selected Variables with Reading Ease Scores.....26
Tenure in Extension.....27
Education Status and Writing Training.....28
Reading Habits.....32
Difficulty and Frequency of Writing.....35
Use of the Newspaper Article as a Teaching Method.....37
Summary.....39

Summary, Conclusions, Implications and Recommendations..41
The Study and Its Objectives.....41
Study Procedures.....41
Characteristics of Respondents.....42
Reading Ease Scores.....43
Conclusions.....45
Implications.....46
Recommendations.....47

List of References.....49

Appendix. The Test Instrument.....51

Introduction

Purpose of the Study

Newspaper articles represent one of several methods commonly used by county agricultural extension agents in communicating with their clientele. The county agent news story as a purveyor of useful information is widely used in North Carolina. In 1966, agents reported writing 24,000 articles. The newspapers, particularly the smaller, more locally oriented papers, generally welcome and many times actually solicit these articles.

Measuring the readability or reading ease of a broad sample of these articles is one way of investigating article quality. Although there is more involved in article quality than the ease with which it can be read, readability is an important factor of quality and one which may be strongly associated with the effectiveness of the article upon the reader.

Determining the relationship of certain personal factors of the author-agent with the readability of his newspaper articles is one way of gaining insight into some of the reasons for a range of readability scores among the author-agents.

The significance of this study, then, is in its implications for (1) evaluating the use being made of news articles by county agricultural agents in terms of readability as a measure of quality and potential effectiveness, and (2) determining possible adjustments in the Extension training program to assist agents in increasing the readability and thereby the effectiveness of written communications.

Statement of the Problem

Extension education is voluntary for the learner. Its success is largely dependent upon the educator's ability to interpret needs, plan programs, and often to motivate the learner to recognize his needs and to become a participant in learning experiences designed to fulfill those needs.

The Agricultural Extension Service educator most often is a technically trained person with expertise in those sciences related to agriculture. He is well grounded in the fundamental sciences. He may or may not be as well grounded in the social sciences. Unless he is formally trained as an agricultural educator, he may not have received training in educational

psychology and methodology. He probably is not instructed in the general area of literature, language, composition and grammar beyond the level required for a college degree in a technical field.

This is not to suggest that it is desirable that Extension educators be formally trained equally in methodology and subject matter. It is a well known fact that an Extension educator's education is a continuous one and much of his ability as a teacher is acquired after college graduation. But it is to point out that Extension educators are not prepared formally for much of the work they are expected to do. Sanders (1966, p. iii) in the prefacing remarks to the book, The Cooperative Extension Service, writes: "Very few Extension educators... have had much training that specifically equips them for their work." One can assume that this is more a testimonial to the diversity of the educator's work than it is an indictment of the college curriculum in which he is trained.

In his diverse job as an educator out in the field, the agricultural agent employs a variety of teaching methods. These include the mass media, including--and prominently so--newspapers. The use of mass media by these technically trained agents of the Extension Service is an example of what Sanders had reference to in the observation cited above.

Trained as a science educator, the agricultural agent could be assumed to be an unlikely candidate as a writer of newspaper articles, at least as a practicing professional. Yet, Extension agents traditionally have used newspapers in their performance as educators. North Carolina county agents are, in fact, required to write newspaper articles regularly as part of their overall teaching effort.

That Extension agent-prepared articles are and will continue to be as important as they have been in the past may be debatable. One must assume, however, that as a larger percentage of the population becomes literate, as a larger percentage of the population reads newspapers regularly, and as more of these newspaper readers read to gain useful information, there will be opportunity for educating through newspapers. This reflects the importance of the ability of the Extension agent to use newspapers effectively.

Pointing up the need for quality in the articles submitted to newspapers by Extension educators is the growing demand for space in newspapers. As competition for news space grows keener, the Extension agent-written articles are placed in stiffer competition with other material available to the editor. The editor may weigh his choice in terms of the quality of content, but one must assume that the quality of the writing will also flavor his selection.

With 375 agricultural agents in the state and with some 200 newspapers circulated to a total of about 1.8 million paid subscribers, the facilities for educating through newspapers are present. Extension is cognizant of this opportunity as judged from program requirements and established practices regarding the use of newspapers. This area of Extension work in North Carolina, however, has received little attention either from the serious researcher or the casual analyst. This study, then, is breaking new ground.

Objectives

To define and give direction to the study, the following objectives were developed:

1. To determine the reading ease of newspaper articles written by selected county agricultural extension agents.

2. To determine the extent to which the following factors were associated with the reading ease of the agents' newspaper articles:

   The Agricultural Extension Agent's

   a. Tenure in Extension Service

   b. Level of formal education

   c. Major field of education

   d. Expressed preference of a favorite college course

   e. Perceived degree of difficulty of English grammar and composition courses

f. Extent of formal instruction in journalism and creative writing

g. Extent of formal or informal instruction in writing for newspapers

h. Readership of daily newspaper editorials

i. General readership of daily newspapers

j. Primary motivation for using newspapers in the performance of an educational role

k. Types of magazines read regularly

l. Number of books other than text books or reference books read in a 12-month period

m. Perceived degree of difficulty of newspaper writing

n. Perceived degree of difficulty of general writing

o. Perceived importance of the use of newspaper articles as an Extension teaching method

p. Frequency of writing for newspapers

q. Perceived frequency with which Agricultural Agents should use newspaper articles as a teaching method

Scope and Procedure

This study involved 100 of the some 375 agricultural agents of the North Carolina Agricultural Extension Service. The 100-agent sample was randomly selected on the basis of newspaper articles submitted to the Department of Agricultural Information, North Carolina State University at Raleigh. A total of 207 agents were represented by authorship when the selection was made. The articles were submitted in

fulfillment of an Extension Service Program requirement. They were used routinely by the Department of Agricultural Information and then stored by the author for the purpose of this study. The articles were written over a period, January 1966 through September 1967. The 100 agents in the sample were mailed questionnaires in October 1967. All 100 questionnaires were completed and returned.

Collection and Analysis of Data

The data collected in this study can be grouped into two major categories: (1) readability scores of agent-written news articles, which became the independent variable; and (2) factors associated with readability scores, which became the dependent variables. Data collected in the second category can be sub-categorized thusly: A. personal background information of the respondents; B. the respondents' attitudes toward and experience in training that might be assumed to be associated with the ability to write at a high level of reading ease; and C. attitudes toward and practical experience in the use of newspapers as a teaching method.

The following procedure was followed in determining the reading ease or readability score of each respondent's articles:

Five of each of the 100 respondents' newspaper articles were randomly selected. The Farr-Jenkins-Paterson Reading Ease Formula was selected as the instrument for determining reading ease or readability of the selected articles. There was a wide choice of formulas. This particular formula was chosen because of its reliability (Klare, 1963) and simplicity. The formula is based on the frequency of monosyllables (nosw) and sentence length (sl). The Farr-Jenkins-Paterson Formula is expressed thusly:

1.599 nosw - 1.015 sl - 31.517 = Reading Ease Index

One-hundred word samples were randomly chosen from each of the five articles selected per respondent. The number of one syllable words and the sentence length were determined and the formula applied. An average reading ease score for each of the 100 agents was calculated from the five individual article scores.

The instrument for collecting personal data directly from the selected agents was prepared and mailed to the agents. It contained 17 items. One group was questions relating to the personal characteristics of the agricultural agents and their writing and reading habits such as the following: years of employment in Extension; level and major field of education; extent of in-school and out-of-school training in journalism and writing courses; reading habits; and frequency of writing newspaper articles.

Another group of questions measured the respondents' attitudes toward writing in general, toward writing specifically for newspapers, and toward the use of newspapers as a teaching method. For these questions a Likert-type scale was used. The following response choices were offered: very important, important, not very important and unimportant; and another set, easy, fairly easy, difficult and very difficult.

Descriptive statistical methods were used in the analysis of data. Included were percentages, frequency counts, and chi-squares. Tables were designed for recording the data.

Conceptual Framework

The Agricultural Extension Agent is a communicator of information which has some degree of utility. His whole purpose in being is to communicate useful information to the public and to influence the receiver of the information to adopt some useful practice. The agent, then, qualifies as a "purposive communicator" in the sense in which the term is used by Westley and MacLean (1955) in their adaptation of Newcombe's communications model.

The Extension agent communicates in a number of ways. One of these is through the use of the written message. The ease with which this message can be read, or its readability, is one measure of the quality of his written communication. One must assume that the quality of the communication is directly related to its effectiveness in accomplishing its intended purpose, that of influencing the reader to take some desirable action or to make some desirable decision.

Writing readably becomes a prerequisite to communicating effectively through the written message.

Thus are the three major components of the framework for this study introduced: communication, readability, and the principles of writing readably.

Communication

Communication researchers have been prolific in their production of theory and new knowledge. But one of the first acknowledgments that must be made in a discussion of communication theory is that there is no single theory that is generally accepted.

A second point that should be made early in the discussion is that, while mass communication is the primary concern of this study, it is not possible to separate entirely mass from personal communication. The two branch out in their own direction at a point, but the tree has a trunk common to both.

In describing the purpose of communication, Berlo (1963, pp. 11-12) writes:

> Our basic purpose in communicating is to become an affecting agent, to affect others, our physical environment, and ourselves, to become a determining agent, to have a vote in how things are. In short, we communicate to influence--to affect with intent.

Hovland (1948) describes communication as the process of an individual or group transmitting cues that are intended to affect the behavior of another individual or group.

Schramm (1955) introduced the three-part process of communication: the source, the message, and the destination. He used the word "commonness" to describe the condition necessary for communication to take place. The receiver must be in tune with the sender in order for the message to be decoded and the communication process completed.

According to Schramm, each person in a communication process is both a receiver and a transmitter. We are constantly engaged in decoding signs from our environment, interpreting the signs and encoding something as a result.

Another important element in the process is feedback. This answers the question, Are our messages being decoded and received as intended? The agricultural agent, if he is communicating to farmers the need to lime soybean fields and in so doing mentions the availability of a publication on the subject, then his feedback comes in the form of requests for the publication. Feedback is one form of evaluation. The course of future communication activity is based on results of evaluating previous activities.

Berlo (1963) describes the communication process as having six ingredients: the communication source, encoder, message, channel, decoder and communication receiver.

The source has the ideas, needs, intentions, information and purpose of communicating. The message is a translation of the ideas and purposes into a code or systematic set of symbols. The encoder puts the ideas of the source in the code and places the message in the channel or the medium that is to carry the message. The decoder translates or decodes the message and puts it into a form the receiver can use.

The source and the encoder can be the same. He often is in the case of the county agent. The decoder and the receiver can also be the same--the Extension audience. The channel, for the purposes of illustration here, is the newspaper.

In electronic communications, there is the concept of "noise" as a distorter or detractor of the fidelity or effectiveness of the message. This can be "noise" of a different order where printed communication is concerned. One of these forms of "noise" could be poorly constructed messages.

Berlo (1963) suggests that there are four factors within the source-encoder which can increase fidelity: communication skills, attitudes, knowledge, and position within a social-cultural system. He further suggests that there are five verbal communication skills, two of which are encoding skills: writing and speaking.

The communication skill levels of the source-encoder determine communication fidelity in two ways: it affects the ability to analyze the purposes and intentions, and the ability of the source-encoder to say something; and it affects the ability to encode the message which expresses what is intended, asserts Berlo.

In his conceptualization of the communication process, Berlo lists the encoding skills needed to prepare the message that expresses what is intended. In the written message, the skills are: vocabulary adequate to express the idea; ability to spell words; ability to put words together most effectively; and the ability to arrange words so that meaning is clear.

These four ingredients in some form provide or are included in the framework of many of the formulas that have been developed to measure readability.

Readability

Studies in readability are fairly recent when viewed in the light of the history of written communication. Most of the studies belong to the 20th Century, and the most significant of these have come within the last three decades.

There are varying concepts of readability. The term "readability" has no standard meaning. It can be interpreted, according to Klare (1963), in terms of an indicator of (1) legibility of either handwriting or typography; (2) ease of understanding or comprehension due to the style of writing; and (3) ease of reading due to either the interest value or the pleasantness of writing. It is the ease of reading that we are concerned with in this study.

As was pointed out in the discussion of communication, the message must be encoded and transmitted to the decoder-receiver in a situation of "commonness" among all involved. The communication will not be complete if the message is encoded in terminology and style difficult or impossible for the receiver to translate. It will have poor readability.

Out of the research of readability have emerged numerous formulas for measuring readability. Paraphrasing Chall (1958, p. 16), the readability formulas are based on quantitative associational studies. A criterion is used--books, short passages or articles that vary in difficulty. The degree of difficulty is established by one of several means, including judgment and tests of comprehension.

The material is then analyzed for internal factors which may account for the variation in difficulty. These factors are expressed quantitatively. The internal factors, presented in quantitative terms, are related to the criteria which are significantly related to the predetermined difficulty of the passages. The degree of relationship usually is expressed by a coefficient of correlation. The higher this coefficient of correlation, the more significant the factor and the more useful it is in predicting the difficulty according to the criteria.

Two factors emerge from the several different analytic approaches, a word factor and a sentence factor. The word factor, writes Klare (1963), appears to be basically frequency of occurrence, but word length is also important. The sentence factor appears to be basically length.

The importance of readability for the Extension Agent is implicit in these observations by Klare (1963, pp. 13-15):

> There is some reason to believe...that readability is more important in voluntary reading, since the person who is not required to read may often stop altogether if he cannot proceed efficiently.
>
> ...A person required to read will often have a strong set to learn, while a person reading voluntarily will usually have a weaker set to learn. But these relationships may be reversed. The problem of motivation is of greatest importance when the writer has a specific purpose in writing.
>
> ...(The writer) cannot expect them (the readers) to have a very strong set to learn or to feel much compulsion to read. Therefore, level of readability becomes of major importance and the principle of

> least effort operates almost with a vengeance on the writer. There seems little question that highly readable, skilled writing will attract more readers than that which is less readable. Reader efficiency with more readable material, and preference for it, creates this predisposition.

The Extension agent's audience is voluntary, totally. He is, in a sense, competing openly for the attention of his audience with skilled, professional writers. To be competitive, his message should be constructed skillfully.

Principles of Writing Readably

Writing can be measured for readability by any one of some 30 or more formulas and their variations. However, no formula has yet been devised for writing readably. One of the most common criticisms of readability formulas is that they make poor formulas for writing.

The research done on and with formulas has yielded certain principles useful in writing. Writes Klare (1963, p. 18):

> Writing is a complex bit of human behavior, and therefore a definition of good or satisfactory writing is hard to develop. There are rules for specific purposes, to be sure, but careful adherence to them does not guarantee good writing.

Most pertinent to this study is the generally accepted theory that writing is an art and not a science. Certain principles Klare had reference to can be taught and followed, however. One of these concerns collection of knowledge about the reader. Educational level, motivation and reader experiences are cited as among the more important of these.

Another principle concerns the writer's self-assurance of purpose. A third principle is concerned with the selection of words--familiar words, short words, non-technical words, etc. A fourth principle relates to sentence construction--sentence length, properly put-together sentences, simple sentences.

A fifth principle, and a favorite of Rudolph Flesch (1948), perhaps the best known and most prolific writer on readability, is "human interest"--use of personal words and sentences.

While these principles may be associated with the ability to write readably, there must be others. Educational background, for example, must be included. Odenahl's (1965) findings may be significant here. He found that among a sample of news and editorial staff members of newspapers with a staff of 6 to 20 people, only 3 percent of them had college degrees in fields other than journalism and liberal arts. The percentages were similar for other categories of newspapers.

It is significant, perhaps, that no agricultural agent of the North Carolina Agricultural Extension Service has a degree in journalism or liberal arts.

While there is no set formula for writing readably, likewise there apparently is none for describing a writer of readable writing. Drawing from the research and pulling liberally from generally accepted assumptions, one might suggest that professional newspaper writers are thought of as having a "liberal" education, a wide breadth of interests and a stronger orientation toward the arts than the sciences.

Implications for This Study

The county extension agent is in the role of a communicator of useful information. One method employed by him in this role is the use of the written message directed at mass audiences. The readability level of these messages is important to the effectiveness of the agent as a communicator through the newspaper as the channel of communication.

There are principles which can be drawn upon in writing readably, but writing is an art rather than a science. There is no set formula for writing readably.

Based on certain assumptions concerning characteristics of professional writers, the Extension agent is an unlikely candidate for a role as a writer of highly readable writing. But, indeed, is he? And what are the factors associated with the readability of his newspaper articles?

Within the foregoing conceptual framework and in view of the apparent lack of knowledge about the county agent communicator as a writer of readable writing, the following hypotheses were advanced to guide the focus of this study:

1. County agricultural extension agents write newspaper articles of low readability.

2. The readability of newspaper articles written by county agricultural extension agents is associated with the following factors of the agent:

    a. Tenure in Extension Service

    b. Level of formal education

    c. Major field of education

    d. Expressed preference of a favorite college course

    e. Perceived degree of difficulty of English grammar and composition courses

    f. Extent of formal instruction in journalism and creative writing

    g. Extent of formal or informal instruction in writing for newspapers

    h. Readership of daily newspaper editorials

    i. General readership of daily newspapers

    j. Primary motivation for using newspapers in the performance of an educational role

    k. Types of magazines read regularly

    l. Number of books other than textbooks or reference books read in a 12-month period

    m. Perceived degree of difficulty of newspaper writing

n. Perceived degree of difficulty of general writing

o. Perceived importance of the use of newspaper articles as an Extension teaching method

p. Frequency of writing for newspapers

q. Perceived frequency with which agricultural agents should use newspaper articles as a teaching method

The following chapters provide an elaboration of these variables and an analysis of the association that exists between these dependent variables and the independent variable, reading ease score.

General Characteristics Of Selected North Carolina County Agricultural Extension Agents

Tenure in Extension

The respondents were asked to indicate the number of years they had been employed in the Agricultural Extension Service. A summary of the responses is presented in Table 1. Twenty-five percent had tenure of one to six years; 32 percent from seven to 15 years; and 43 percent 16 years or more.

Table 1. County agricultural agents classified by tenure

Tenure	Percent
1 - 6 years	25
7 - 15 years	32
16 years and over	43
Total	100

Education Status and Writing Training

Information was sought from the agricultural agents on their level and field of education, their education in journalism and creative writing, and their training specifically to write for newspapers. These data are summarized and presented in Tables 2 through 7.

In recent years, certain emphasis has been placed on graduate study for county extension personnel. The data in Table 2 indicate that 69 percent of the respondents had some graduate study and another 6 percent had master's degrees. One out of four had had no formal education beyond the bachelor's level.

Table 2. County agricultural agents classified by level of formal education

Level of formal education	Percent
Bachelor's degree	25
Some graduate study	69
Master's degree	6
Total	100

Because of the peculiar nature of this study, responses to the question concerning field of education were placed in three categories. The objective was to group the respondents according to area of education rather than pinpointing the precise curriculum. Table 3 shows these groupings.

The formal education of 33 percent of the agents was in the broad field of the physical and biological sciences, and that of 39 percent of the agents was in the social sciences. These categories could include those with and without graduate study, but the third category, physical-biological sciences and social sciences, contains only those with graduate study. Twenty-eight percent of the respondents are placed in this category. This group would represent those respondents who changed their major field, as categorized herein, as graduate students. This is offered only as explanation and should not be confused as being related to the purpose of the question.

Table 3. County agricultural agents classified by field of education

Field of education	Percent
Physical and biological sciences	33
Social sciences	39
Physical-biological sciences and social sciences	28
Total	100

In an attempt by the author to measure how strong was the orientation of the respondents to the technical as opposed to the non-technical college courses, the agents were asked to indicate their favorite college course. The summary of their responses is shown in Table 4.

Seventy-three percent indicated their favorite course was in the physical and biological sciences area, while 15 percent indicated their favorite was in the social sciences area. Twelve percent of the respondents did not answer this question.

Table 4. County agricultural agents classified by expressed preference of favorite college course

Area of favorite course	Percent
Physical and biological sciences	73
Social sciences	15
No response	12
Total	100

The respondents were asked to indicate their experiences in English grammar and composition study, specifically the difficulty of these courses. Table 5 depicts the responses.

Table 5. County agricultural agents classified by perceived difficulty of English grammar and composition training

Perceived difficulty	Percent
Easy	4
Fairly easy	45
Difficult	42
Very difficult	9
Total	100

Four percent indicated English grammar and compostion study was easy for them; 45 percent, fairly easy; 42 percent, difficult; and 9 percent, very difficult.

Specific information was sought on whether the respondents had received formal training in journalism and/or creative writing, and informal or formal training in writing for newspapers. The summaries of the responses to these questions are shown in Tables 6 and 7.

Table 6 indicates that 82 percent had had no journalism or creative writing training. The other 18 percent answered that they had had training in these areas.

Table 6. County agricultural agents classified by journalism-creative writing training

Journalism-creative writing training	Percent
No	82
Yes	18
Total	100

Table 7 indicates that 55 percent had received no instruction in writing for newspapers and that 45 percent had received such instruction.

Table 7. County agricultural agents classified by training to write for newspapers

Newspaper writing training	Percent
No	55
Yes	45
Total	100

Reading Habits

Four questions were asked the agricultural agents in search of information relative to their reading habits. These data are summarized in Tables 8 through 11.

Table 8 summarizes the agents' responses to the question which asked how many books other than textbooks and reference books they had read during the last 12 months. This was an attempt to gain some insight into the respondents' leisure reading habits and exposure to professional writing.

Twenty-seven percent indicated they had read no books during the specified period. Nineteen percent had read one book; 16 percent, two books; 14 percent, three books; and 24 percent, more than three books.

Table 9 summarizes the agents' responses to a question concerning the types of magazines they regularly read. This was another attempt to ascertain to a degree the breadth of the respondents' interests, their leisure reading habits, and their exposure to professional writing.

Table 8. County agricultural agents classified by number of books other than textbooks and reference books read during last 12 months

Number of books read	Percent
None	27
One	19
Two	16
Three	14
More than three	24
Total	100

Table 9. County agricultural agents classified by types of magazines read

Types of magazines read	Percent
None	1
Variety of types	71
General news	3
Farm	25
Total	100

One percent read no magazines; 71 percent indicated they read a variety of types of magazines, which included general news, family, farm and entertainment-type magazines; 3 percent indicated they read only general news magazines, which would include those such as Time, Newsweek, U. S. News and World

Report, etc.; and 25 percent indicated they read only farm magazines, which included the general type publications such as Farm Journal and Progressive Farmer, and the more specialized publications such as Farm Technology, National Hog Farmer, etc.

The respondents were asked the average time per day they spent reading daily newspapers. The answers are summarized in Table 10. All indicated they spent some time reading a daily newspaper. Eight percent indicated the time averaged 5 to 10 minutes a day; 37 percent indicated the time was 11 to 20 minutes; 31 percent indicated 21 to 30 minutes; 12 percent indicated 31 to 45 minutes; and 12 percent indicated more than 45 minutes.

Table 10. County agricultural agents classified by average time spent per day reading daily newspapers

Newspaper reading time	Percent
None	0
5 - 10 minutes	8
11 - 20 minutes	37
21 - 30 minutes	31
31 - 45 minutes	12
More than 45 minutes	12
Total	100

The respondents were asked if they read at least one newspaper editorial a day--this in an attempt to gain further insight into the breadth of the agents' reading interests. As depicted in Table 11, 26 percent indicated they did not read at least one newspaper editorial a day; 74 percent indicated that they did.

Table 11. County agricultural agents classified by whether they read at least one newspaper editorial a day

Editorial readership	Percent
No	26
Yes	74
Total	100

Difficulty and Frequency of Writing

A series of three questions was designed to gather information from the respondents relative to writing, both general writing and writing for newspapers. Responses are summarized in Tables 12 through 14.

The agents were asked to indicate if they regarded general writing--letters, reports, etc.--as easy, fairly easy, difficult, very difficult. Fifteen percent indicated that general writing was easy; 66 percent, fairly easy; 18 percent, difficult; and 1 percent, very difficult. These data are summarized in Table 12.

Table 12. County agricultural agents classified by perceived difficulty of general writing

Perceived difficulty	Percent
Easy	15
Fairly easy	66
Difficult	18
Very difficult	1
Total	100

The agents had the same choice of responses to a similar question concerning the perceived difficulty of writing for newspapers. The data in Table 13 show that 17 percent felt that writing for newspapers was easy; 61 percent, fairly easy; and 21 percent difficult.

Table 13. County agricultural agents classified by perceived difficulty of writing for newspapers

Perceived difficulty	Percent
Easy	17
Fairly easy	61
Difficult	21
No response	1
Total	100

The agents were asked to indicate the frequency with which they wrote articles for newspapers. As shown in Table 14, almost half of the 100 respondents, 48 percent, indicated they wrote one or more articles per week. The next largest number, 31 percent, indicated they wrote one article every two weeks. Of the remainder, 12 percent wrote one article every three weeks; 7 percent wrote one article a month; and 2 percent wrote less than one article a month.

Table 14. County agricultural agents classified by frequency of writing for newspapers

Frequency of writing	Percent
One or more articles a week	48
One article every two weeks	31
One article every three weeks	12
One article a month	7
Less than one article a month	2
Total	100

The Newspaper Article as a Teaching Method

The final series of questions sought to bring to light the agents' regard for the newspaper article as a teaching method. These data are summarized in Tables 15, 16 and 17.

The agents were asked to express the degree of importance they placed on use of the newspaper article as a teaching method. Thirty-six percent indicated they felt it was very important; 60 percent, important; and 4 percent, not very important. None of the agents felt that newspaper articles were unimportant. The summary of this data, as shown in Table 15, indicates that agricultural agents placed a high value on the newspaper article as a teaching method.

Table 15. County agricultural agents classified by perceived importance of newspaper article as an Extension teaching method

Perceived importance	Percent
Very important	36
Important	60
Not very important	4
Total	100

The data in Table 16 represent a summary of responses to the question: "What is the primary motivation for you to use newspapers in the performance of your role as a county agricultural agent?" Again, the respondents showed their high regard for the usefulness of newspaper articles with 92 percent indicating they used the newspaper article because it is effective as a teaching method. One percent--one respondent--indicated that his motivation was a request from the editor; 3 percent indicated they used newspaper articles primarily because it was traditional; and four percent indicated they used newspapers because it is expected by their superiors.

Table 16. County agricultural agents classified by primary motivation to use newspapers in performance of their role

Motivation	Percent
Expected by superior	4
Effective as teaching method	92
Requested by editor	1
Because it's traditional	3
Total	100

Finally, the agents were asked if they felt county agricultural agents should use the newspaper article as a teaching method more often, about at present level, less often, not at all. Responses to this question are summarized in Table 17.

Table 17. County agricultural agents classified by perceived frequency with which newspaper articles should be used as a teaching method by agricultural agents

Desired frequency	Percent
More often	53
About at present level	46
No response	1
Total	100

Fifty-three percent indicated they felt newspaper articles should be used more often; 46 percent indicated use should be maintained at about the present level. None indicated that agents should reduce the number of articles they write or eliminate them entirely. The responses to this question lend further strength to the high value the responding agents place on use of the newspaper article.

Factors Associated With Reading Ease Scores of Newspaper Articles

Determination of Reading Ease Scores

A valid instrument had to be selected for measuring reading ease of the newspaper articles written by the 100 respondents. A review of the literature yielded over 30 readability formulas and their variations. The Farr-Jenkins-Paterson Reading Ease Formula was selected from this list for two reasons: (1) it was a reliable measure of reading ease (Klare, 1963); and (2) it was simple and easy for the person inexperienced in the measurement of readability to use.

The two elements involved in the Farr-Jenkins-Paterson Formula are the frequency of monosyllables (nosw) and sentence length (sl). It is expressed thusly:

1.599 nosw - 1.015 sl - 31.517 = Reading Ease Index

Five newspaper articles were randomly selected for each of the 100 agent-author respondents and the readability formula applied to 100-word samples of each. An average reading ease score for each respondent was calculated from the five individual article scores. This score became the independent variable in the study.

Table 18 summarizes the data from these calculations, giving the distribution of reading ease scores. The Farr-Jenkins-Paterson reading ease categories (Farr, Jenkins and Paterson, 1951, p. 336) were used to assign each numerical range a degree of reading difficulty. These categories ranged from "very difficult" in the 0-29 numerical range, to "easy" in the 80-89 numerical range. The reading ease scores of the respondents in this study ranged from a low of 23 to a high of 65. The writing of none of the agents fell into either the "fairly easy" or "easy" reading ease categories.

Table 18. Average reading ease scores of newspaper articles written by 100 selected county agricultural agents

Reading ease score	Percent
0 - 29 (very difficult)	4
30 - 50 (difficult)	61
51 - 59 (fairly difficult)	28
60 - 69 (standard)	7
70 - 79 (fairly easy)	0
80 - 89 (easy)	0
Total	100

Combining the "very difficult" and the "difficult" categories into one "low" category and combining "fairly difficult" and "standard" into one "high" category, the data show 65 percent of the agents wrote in the "low" end of the scale and 35 percent in the "high" end.

Examining the individual categories, it is shown that only seven out of the 100 respondents wrote newspaper articles with reading ease registering above the "fairly difficult" category. Well over half, 61 percent, fell into one category, "difficult."

The data cited here tend to support one of the two hypotheses set forth earlier, that county agricultural extension agents write newspaper articles of low readability.

Association of Selected Variables with Reading Ease Scores

The second hypothesis developed to give direction to this study was that the readability scores of newspaper articles written by selected agricultural agents would be associated

with factors related to the agents' tenure, education and training, reading habits, writing experiences, and regard for the use of newspaper articles as an Extension teaching method. A 17-item instrument was developed and submitted to the selected agents to obtain data on these factors. These became the dependent variables.

This section is a discussion of the relationship of these dependent variables to the respondents' reading ease scores. The statistical instrument used to determine the relationships existing between the variables was the chi-square test. Values at the .05 level of probability or less indicated significant relationships. Actual numbers were used in computing chi-square values.

Tenure in Extension

Based on responses by the 100 agricultural agents and as recorded earlier, 25 percent had been employed by the Extension Service 1 to 6 years; 32 percent, 7 to 15 years; and 43 percent, 16 years and over. The data in Table 19 show that the agents' tenure in Extension is not significantly associated with the reading ease score of their newspaper articles. There was a tendency, although not statistically significant, for respondents in the two higher tenure groups to write more readably than those in the low tenure group.

Table 19. County agricultural agents classified by tenure and reading ease score

Tenure	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
1-6 years	25	4.0	72.0	12.0	12.0	5.85
7-15 years	32	6.3	53.1	34.4	6.3	
16 years and over	43	2.3	60.5	32.6	4.7	

Education Status and Writing Training

Six questions related to education, including instruction in areas associated with writing skills, were asked the respondents. The responses are recorded in Tables 2 through 7. Tables 20 through 25 present a summary of reading ease score-dependent variable association.

The data in Table 20 do not show a significant relationship between level of education and the agents' reading ease score. Holders of the master's degree did show some tendency to write more readably, but the number in this education category is extremely small.

Table 20. County agricultural agents classified by level of formal education and reading ease score

Level of formal education	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Bachelor's degree	25	4.0	56.0	28.0	12.0	6.25
Some graduate study	69	4.3	65.2	24.6	5.8	
Master's degree	6	---	33.3	66.7	---	

For purposes of this study, fields of education were expressed in three categories: (1) physical and biological sciences; (2) social sciences; and (3) physical-biological sciences and social sciences. The third category was necessary to include those respondents who did major study in different fields as undergraduates and as graduate students. There was a fairly even distribution of the 100 respondents among the three categories.

Data summarized in Table 21 show that there was significance at the .05 level of probability in the association of field of education and reading ease score. Combining the 0-29 and 30-50 reading ease categories into one "low" category

and the 51-59 and 60-69 for one "high" category, there was a tendency for agents who had done major study in the combined physical-biological sciences and social sciences areas to write more readably than those in the other two field of education categories. Over 46 percent in the combination category placed in the "high" reading ease score range as opposed to 30 percent in the social sciences area and about the same percentage in the physical-biological sciences area.

Table 21. County agricultural agents classified by field of education and reading ease score

Field of education	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Physical and biological sciences	33	3.0	66.7	21.2	9.1	12.55*
Social sciences	39	5.1	64.1	30.8	---	
Physical-biological sciences and social sciences	28	3.6	50.0	32.1	14.3	

*Significant at the .05 level of probability.

The respondents were asked to express a preference of a favorite college course. This was done to gain some indication of their orientation toward the technical or non-technical areas of study. Table 22 presents these data in association with reading ease score. There is no significant relationship, although 40 percent of those expressing a preference for courses in the social sciences wrote in the "high" range as opposed to about 34 percent who indicated a stronger orientation toward the technical courses of the physical and biological sciences.

Table 22. County agricultural agents classified by expressed preference of favorite college course and reading ease score

Favorite course	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Physical and biological sciences	73	2.7	63.0	26.0	8.2	2.84
Social sciences	15	6.7	53.3	40.0	---	

As was shown in Table 5, roughly half of the respondents perceived English grammar and composition training to be "easy" or "fairly easy" and the other half perceived it to be "difficult" or "fairly difficult." The statistical analysis showed a significant pattern in the distribution of reading ease scores among these two composite groups. As shown in Table 23, the "difficult-very difficult" group tended to write more readably than those who perceived English grammar and composition training to be "easy-fairly easy." However, this significance, at the .05 level of probability, was in reverse of what had been assumed might be the case.

Table 23. County agricultural agents classified by perceived difficulty of English grammar and composition training and reading ease score

Perceived difficulty	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Easy	4	---	100.0	---	---	17.08*
Fairly easy	45	8.9	66.7	15.6	8.9	
Difficult	42	---	47.6	45.2	7.1	
Very difficult	9	---	77.8	22.2	---	

*Significant at the .05 level of probability.

As shown in Tables 24 and 25, there was no significant association of the reading ease scores with either of the dependent variables, journalism-creative writing training and newspaper writing training. Only 18 percent of the respondents had experienced journalism-creative writing training. There was no pattern evident, as Table 24 indicates, between the writing of this group and that of the other group that had not received such training.

Table 24. County agricultural agents classified by journalism-creative writing training and reading ease score

Journalism-creative writing training	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
No	82	4.9	58.5	28.0	8.5	2.86
Yes	18	---	72.2	27.8	---	

The Chi-square value shown in Table 25 approached significance, but an examination of the data shows that the tendency is in the opposite direction of what normally would be expected. That is, those agents who had received instructions on how to write for newspapers actually scored lower on reading ease than those who had not received such training.

In summarizing the data related to educational variables and their association with the agents' reading ease scores, it was found that there is significance at the .05 level of probability in two cases--field of education and perceived difficulty of English grammar and composition training--and no significance in the other four--level of formal education; expressed preference of a favorite course, technical vs. non-technical; journalism-creative writing training; and newspaper writing training.

Table 25. County agricultural agents classified by newspaper writing training and reading ease score

Newspaper writing training	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
No	55	5.5	50.9	32.7	10.9	6.33
Yes	45	2.2	73.3	22.2	2.2	

Reading Habits

Reading habits may be one expression of an individual's breadth of interest, and a broad range of interests might provide a stronger background for writing. Therefore, a series of questions was formulated to determine the respondents' reading habits for comparison with their readability achievement. These comparisons are presented in Tables 26 through 29.

The application of the chi-square test indicated that there was no significance in the case of each of the four variables. No pattern is evident in Table 26 which compares reading ease scores and number of books other than textbooks and reference books read by the agents in a 12-month period. Reading ease scores in the two highest categories were about the same for those respondents who read no books and those who read more than three.

A question related to the types of magazines the agents read regularly resulted in a preponderence of the respondents placing in the "all types" and the "farm only" categories with no significant pattern emerging between them, as shown in Table 27. However, those who indicated they read "all types" of magazines tended to score slightly higher than those who indicated they read only "farm" magazines regularly. The "all types" would indicate a greater breadth of reading interests than the "farm only" category.

Table 26. County agricultural agents classified by number of books other than textbooks and reference books read during last 12 months and reading ease score

Number of books	TN	Reading ease score				Chi-square
		0-29	30-50	51-59	60-69	
		(percent)				
None	27	---	63.0	29.6	7.4	13.33
One	19	5.3	57.9	36.8	---	
Two	16	---	68.8	25.0	6.3	
Three	14	14.3	50.0	14.3	21.4	
More than three	24	4.2	62.5	29.2	4.2	

Table 27. County agricultural agents classified by types of magazines read and reading ease score

Types of magazines	TN	Reading ease score				Chi-square
		0-29	30-50	51-59	60-69	
		(percent)				
None	1	---	---	100.0	---	8.66
All types	71	5.6	59.2	29.6	5.6	
General news only	3	---	66.7	---	33.3	
Farm only	25	---	68.0	24.0	8.0	

Data in Table 28 show that reading ease of newspaper articles written by the agents was not significantly associated with the average time per day they spent reading daily newspapers. There seemed to be some tendency, although not significant, for those in the "medium" reading time range to write more readably than those in either the lowest--5 to 10 minutes--group or the highest--more than 45 minutes per day--group.

Table 28. County agricultural agents classified by average time spent per day reading daily newspapers and reading ease score

Newspaper reading time	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
5-10 minutes	8	---	87.5	12.5	---	13.14
11-20 minutes	37	8.1	59.5	21.6	10.8	
21-30 minutes	31	3.2	61.3	29.0	6.5	
31-45 minutes	12	---	33.3	58.3	8.3	
More than 45 minutes	12	---	75.0	25.0	---	

It was assumed that the content variety of a newspaper editorial page would reflect in some degree the breadth of reading interests of those who spend some time each day reading this particular section of the newspaper. The data in Table 29 show that this variable was not significantly associated with the agents' reading ease scores. Only slightly higher scores were recorded for those who indicated they read at least one newspaper editorial a day.

Table 29. County agricultural agents classified by whether they read at least one newspaper editorial a day and reading ease score

Editorial readership	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
No	26	---	69.2	26.9	3.8	2.30
Yes	74	5.4	58.1	28.4	8.1	

In summary, there was no significance found in the association of four variables related to the respondents' reading habits and their reading ease scores.

Difficulty and Frequency of Writing

Tables 12, 13 and 14 present a summary of the agents' responses to three questions related to their authorship of newspaper articles and their attitude toward writing, both general writing and writing for newspapers. Tables 30, 31 and 32 present a summary of results of the chi-square test which measured these variables for association with reading ease scores.

Table 30 shows no significance in the association of the agents' perceived difficulty of general writing (letters, reports, etc.) and reading ease scores. Nearly as many who perceived this type of writing to be "difficult" scored in the upper half of the reading ease scores as did those who indicated the writing was "easy."

Table 30. County agricultural agents classified by perceived difficulty of general writing and reading ease scores

Perceived difficulty	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Easy	15	---	53.3	33.3	13.3	3.15
Fairly easy	66	4.5	63.6	25.8	6.1	
Difficult	18	5.6	55.6	33.3	5.6	
Very difficult	1	---	100.0	---	---	

Neither was there significance in the association of perceived difficulty of newspaper writing and reading ease score. Those who indicated the writing was "difficult" showed a tendency to write more readably than those who indicated the writing was "fairly easy" or "easy." These data are summarized in Table 31.

Table 31. County agricultural agents classified by perceived difficulty of writing for newspapers and reading ease score

Perceived difficulty	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Easy	17	---	58.8	29.4	11.8	4.97
Fairly easy	61	6.6	63.9	24.6	4.9	
Difficult	21	---	52.4	38.1	9.5	

The data related to frequency of writing for newspapers were summarized earlier and showed that nearly half of the agents wrote one or more articles a week. However, as shown in Table 32, those who wrote less frequently, particularly those writing at the frequency of one article a month, tended to write with highest readability. The chi-square test showed this association to be significant at the .01 level of probability. The association, however, was opposite from what had been expected. The reading ease scores tended to go up as the writing frequency came down. The author had assumed that, should significance be shown, it would be in the reverse. That is, reading ease scores would rise as writing frequency rose.

Table 32. County agricultural agents classified by frequency of writing for newspapers and reading ease score

Frequency of writing	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
One or more articles a week	48	---	68.8	29.2	2.1	26.81*
One article every two weeks	31	9.7	54.8	19.4	16.1	
One article every three weeks	12	---	66.7	33.3	---	
One article a month	7	---	42.9	42.9	14.3	
Less than one article a month	2	50.0	---	50.0	---	

*Significant at the .01 level of probability

Use of the Newspaper Article as a Teaching Method

As was pointed out earlier, North Carolina county Extension personnel are required to write newspaper articles in the performance of their educational role. Motivational research would indicate that this in itself could be a factor influencing the readability of newspaper articles written by these agents, if, indeed, the only reason agents write for newspapers is because they are required to do so.

This area of the study was approached by framing questions designed to measure the agents' regard for the use of the newspaper article as an Extension teaching method. Those data are summarized earlier. Tables 33, 34 and 35 present data in association with reading ease scores. While it is apparent that agents hold the use of the newspaper article in high regard, the chi-square test shows no significance in the association of any of these variables with reading ease.

No patterns are apparent in Tables 33 and 34 which deal respectively with data on perceived importance of the newspaper article and primary motivation for using the newspaper article in informal teaching.

Table 33. County agricultural agents classified by perceived importance of newspaper articles as an Extension teaching method and reading ease score

Perceived importance	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Very important	36	---	69.4	27.8	2.8	6.04
Important	60	6.7	56.7	26.7	10.0	
Not very important	4	---	50.0	50.0	---	

Table 34. County agricultural agents classified by primary motivation to use newspapers in performance of their role and reading ease score

Motivation	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
Expected by superior	4	---	75.0	25.0	---	7.83
Effective as teaching method	92	4.3	62.0	27.2	6.5	
Requested by editor	1	---	100.0	---	---	
Because it's traditional	3	---	---	66.7	33.3	

Table 35, summarizing data related to the frequency with which respondents perceive newspaper articles should be written by agricultural agents, indicates there is some tendency, although not significant, for those advocating increasing the writing frequency to write more readably than those indicating that the frequency should not change from the present level.

In summary, there is no significant tendency for agents who place highest importance on use of newspaper articles to write any more or less readably than those who place less importance on use of newspaper articles.

Table 35. County agricultural agents classified by perceived frequency with which newspaper articles should be used as a teaching method by agricultural agents and reading ease scores

Frequency	TN	Reading ease score				
		0-29	30-50	51-59	60-69	Chi-square
		(percent)				
More often	53	3.8	64.2	24.5	7.5	0.49
About at present level	46	4.3	58.7	30.4	6.5	

Summary

Two hypotheses were formulated to give direction to this study. It was hypothesized that agricultural extension agents write newspaper articles of low readability. The data tend to support this hypothesis. As shown in Table 18, 65 percent of the agents wrote in the "very difficult" and "difficult" reading ease categories. None scored in the highest categories, "fairly easy" and "easy."

It was also hypothesized that the reading ease scores of newspaper articles written by agricultural extension agents would be associated with the following factors:

1. Tenure in Extension Service
2. Level of formal education
3. Major field of education
4. Expressed preference of a favorite college course
5. Perceived degree of difficulty of English grammar and composition courses
6. Extent of formal instruction in journalism and creative writing
7. Extent of formal or informal instruction in writing for newspapers
8. Readership of daily newspaper editorials
9. General readership of daily newspapers
10. Primary motivation for using newspapers in the performance of an educational role
11. Types of magazines read regularly
12. Number of books other than textbooks or reference books read in a 12-month period
13. Perceived degree of difficulty of newspaper writing
14. Perceived degree of difficulty of general writing
15. Perceived importance of the use of newspaper articles as an Extension teaching method
16. Frequency of writing for newspapers
17. Perceived frequency with which agricultural agents should use newspaper articles as a teaching method.

This hypothesis was rejected for 14 of the 17 variables on the basis of data presented in Tables 19 through 35. It was tentatively concluded that field of education appears to be significantly associated with reading ease scores of the agents involved in this test. Significance at the .05 level of probability was also shown in the association of the following variables: perceived difficulty of English grammar and composition training; and frequency of writing for newspapers. However, these associations were in reverse order from that which the author had expected.

Summary, Conclusions, Implications And Recommendations

The Study and Its Objectives

The major purpose of this study was to determine the readability or reading ease of the newspaper articles written by selected North Carolina county agricultural extension agents and to determine the extent to which certain selected factors were associated with the reading ease scores.

The premise upon which the study was based is that agricultural agents have available to them, are using, and in fact, are required to use a tool of informal education which they appear to be ill-equipped to use in terms of formal background and experience.

Specific objectives were to: (1) determine the reading ease scores of newspaper articles written by selected agricultural agents; and (2) determine the extent to which selected factors appear to be associated with the reading ease scores of newspaper articles written by selected agricultural agents.

Study Procedures

The Farr-Jenkins-Paterson Reading Ease Formula was selected as the instrument with which to measure the readability or reading ease of newspaper articles written by agricultural extension agents. The formula involves two elements, frequency of monosyllables (nosw) and sentence length (sl). The formula is expressed thusly:

1.599 nosw - 1.015 sl - 31.517 = Reading Ease Index

This study involved 100 of the some 375 agricultural agents employed by the North Carolina Agricultural Extension Service.

Five newspaper articles written by each respondent were randomly selected. One hundred-word samples were selected from each of the five articles. Sentence length and the number of monosyllables were determined and the formula applied. A reading ease score was determined for each of the five samples and an average reading ease score was calculated from these for each of the 100 agents.

Characteristics of Respondents

Data describing some general characteristics of the agricultural agents were organized and presented in five categories. These were the agents' (1) tenure in Extension; (2) education; (3) reading habits; (4) writing experience; and (5) regard for the use of the newspaper article as an Extension teaching method.

Tenure. The largest tenure group, 43 percent, was in the highest tenure category, 16 years and over. Thirty-two percent had been employed 7 to 15 years and 25 percent, 1 to 6 years.

Education. Six percent of the agents had master's degrees, 69 percent has some graduate study, and 25 percent had only bachelor's degrees.

There was a fairly even distribution of the 100 agents among three field of education categories: 33 percent in physical and biological sciences; 39 percent in social sciences; and 28 percent in the combination group, physical-biological sciences and social sciences. Seventy-three percent tended to be oriented most strongly toward the technical field as indicated by preference of a favorite course in the physical and biological sciences.

The agents were fairly evenly divided between perceptions of the difficulty of English grammar and composition. Only 18 percent had received any formal journalism or creative writing training. Forty-five percent had received some formal or informal training in writing for newspapers.

Reading Habits. Seventy-one percent of the agents read a variety of types of magazines regularly; 25 percent read only farm magazines. The agents indicated they were unpredictable in the number of books read. Twenty-seven percent answered that they read no non-text or reference books in a 12-month period; 24 percent indicated they read three or more books. Seventy-four percent indicated they read at least one newspaper editorial a day; 68 percent indicated they spent 11 to 30 minutes a day reading daily newspapers.

Writing Experiences. Eighty-one percent of the agents regarded general writing as rather easy; 88 percent regarded newspaper writing as rather easy. Forty-eight percent wrote one or more newspaper articles a week; another 31 percent wrote one article every two weeks; and only 9 percent wrote one or fewer a month.

Regard for Newspaper Article in Teaching. The agents indicated a high regard for the newspaper article as an Extension teaching method. Sixty percent indicated it was "important" and 36 percent, "very important." Ninety-two percent indicated they wrote newspaper articles primarily because it was an effective practice. Fifty-three percent indicated agents should make more frequent use of the newspaper article.

Reading Ease Scores

The hypothesis that agricultural agents write newspaper articles of low readability tended to be supported by the data of this study. Sixty-five percent had scores in the "difficult" and "very difficult" categories. Another 28 percent scored in the "fairly difficult" category, and only 7 percent in the "standard" category. None scored higher than "standard."

It was hypothesized that the readability of newspaper articles written by agricultural extension agents would be associated with the following factors:

1. Tenure in Extension Service
2. Level of formal education
3. Major field of education

4. Expressed preference of a favorite college course

5. Perceived degree of difficulty of English grammar and composition courses

6. Extent of formal instruction in journalism and creative writing

7. Extent of formal or informal instruction in writing for newspapers

8. Readership of daily newspaper editorials

9. General readership of daily newspapers

10. Primary motivation for using newspapers in the performance of an educational role

11. Types of magazines read regularly

12. Number of books other than textbooks or reference books read in a 12-month period

13. Perceived degree of difficulty of newspaper writing

14. Perceived degree of difficulty of general writing

15. Perceived importance of the use of newspaper articles as an Extension teaching method

16. Frequency of writing for newspapers

17. Perceived frequency with which agricultural agents should use newspaper articles as a teaching method.

Based on data presented in Tables 19 through 35, this hypothesis was rejected for 14 of the 17 variables. The association of three variables was significant at the .05 level of probability. These variables were: (1) field of education; (2) perceived difficulty of English grammar and composition; and (3) frequency of writing newspaper articles. The association of the latter two was in reverse order from what had been expected. It was tentatively concluded that

field of education appears to be significantly associated with the reading ease scores of the 100 agricultural extension agents who were the respondents in this study.

Conclusions

The data obtained in this study provided the basis for the following conclusions:

1. The readability or reading ease of the newspaper articles written by agricultural extension agents can be determined by the application of the Farr-Jenkins-Paterson Reading Ease Formula.

2. The 100 agricultural extension agents involved in this study write newspaper articles of relatively poor readability. Only seven out of the 100 wrote in the "standard" range, which would seem to be a desirable minimum for the type of mass audience for which the articles are intended.

3. The field of education of the 100 agricultural agents affects their ability to write at a relatively high level of readability. Those agents who have done major study in both the "subject matter" area of the physical-biological sciences, and the social sciences--predominantly adult education--write more readable newspaper articles than those who have done major study in only one of those academic fields. Although the data presented doesn't show it, nearly all of those who were placed in the physical-biological sciences and social sciences category had done graduate study in adult education.

4. A relatively small number of agricultural agents have received writing training, either formal or informal. Formal training is particularly limited, and informal training in writing for newspapers has been inadequate and ineffectual.

5. The agricultural agents included in this study recognize a relatively high degree of value in

use of the newspaper article as an Extension teaching method. The agents indicate they feel strongly that this approach to informal teaching should be continued.

Implications

The analysis of the data compiled in this study and the conclusions drawn on the basis of these data have certain implications for the Agricultural Extension Service. The following are considered by the author to be important:

1. Readability measurement and other forms of quantitative and qualitiative assessment can be used in evaluating the use agricultural agents make of a readily available informal teaching medium--the newspaper article. The Extension Service could use this evaluation as a point of departure in strengthening and further developing planned use of newspapers in informal education.

2. The findings of this study, limited though they are in terms of identifying factors associated with readable writing, could be used in helping design further studies of the same area of Extension Service activity. Once the factors associated with high and low readability are delineated, positive action can be planned to improve the agents' writing.

3. Agricultural agents write newspaper articles of relatively poor readability. In light of this finding, it would be reasonable to assume that all writings of the agents--reports, letters, newsletters, etc.--may be of equally low readability. The entire communications system is involved and affected if the agent is unable to communicate effectively, either through internal or external channels, by way of the written word. Therefore, any attempt to strengthen the agents' newspaper writing ability could have broader beneficial effects for the individual as a communicator.

Recommendations

Based on the interpretations of the findings of this study and an evaluation of the procedures used in it, the following recommendations are made:

1. That tests used in the study be subjected to further revision and modification.

2. That agricultural agents' newspaper articles and their use be subjected to additional quantitative and qualitative investigation in order to measure effectiveness and potential.

3. That measurements of readability other than the one used in this study be applied to agricultural agents' newspaper articles in order to test other elements that may affect readability.

4. That further investigation of the readability of agricultural agents' newspaper articles include a comparison group of recognized professional writers such as newspaper farm editors or other professional agricultural writers. This would provide a broader basis for assessing the agents' writing and perhaps help identify personal factors associated with the reading ease of their writing.

5. That Extension administrators and supervisors assess for themselves or be made the subjects of a separate study to determine if they share the agents' perception of the importance of using newspaper articles as a method of informal education. This could help establish new priorities for training Extension agents or result in a change in Extension programming.

6. That serious consideration be given to the phenomenon of Extension educators having to and wanting to use an important teaching tool--the newspaper article--without proper background and training. Such consideration could lead to a reappraisal of Extension's induction and in-service training priorities. The ultimate

result could be better trained agents who make more effective and efficient use of the newspaper as a medium of informal education.

7. That factors other than the 17 tested in this study be identified and investigated in a comparable manner in which this study was conducted.

LIST OF REFERENCES

Berlo, D. K. 1963. The Process of Communication. Holt, Rinehart and Winston, Inc., New York.

Chall, J. S. 1963. Readability: An Appraisal of Research and Application. The Ohio State University Press, Columbus.

Farr, J. N., J. J. Jenkins and D. G. Paterson. 1951. "Simplification of Flesch Reading Ease Formula," Journal of Applied Psychology, 35:333-337.

Flesch, Rudolf. 1951. How to Test Readability. Harper Brothers, New York.

Klare, G. R. 1963. The Measurement of Readability. The Iowa State University Press, Ames.

Lionberger, H. F. 1960. Adoption of New Ideas and Practices. The Iowa State University Press, Ames.

North Carolina Cooperative Extension Service. 1966. Unpublished statistical report of the North Carolina Cooperative Extension Service, Raleigh.

Odendahl, Eric. 1965. "College Backgrounds of Staffs of American Daily Newspapers," Journalism Quarterly, 42(3):463-464.

Pitkin, W. B. 1940. The Art of Useful Writing. McGraw-Hill Book Company, Inc., New York.

Sanders, H. C. (editor). 1966. The Cooperative Extension Service. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Schramm, Wilbur. 1955. "Information Theory and Mass Communications," Journalism Quarterly, 32:131-146.

Tichenor, P. J., G. A. Donohue and C. N. Olien. 1963. Purposive Communications, Extension Studies Series No. 6, University of Minnesota, Minneapolis.

Westley, B. H., and MacLean, M. S., Jr. 1955. "A Conceptual Model for Communications Research," Audio-Visual Communication Review, 3(1):3-12.

Wilkening, E. A. 1955-1956. "Roles of Communicating Agents in Technological Change in Agriculture," Social Forces, 34:361-367.

APPENDIX. THE TEST INSTRUMENT

FACTORS ASSOCIATED WITH READABILITY OF NEWSPAPER ARTICLES WRITTEN BY AGRICULTURAL EXTENSION AGENTS

1. How long have you been an Extension employee?
   _____years

2. Level and field of education

Level	Field (crop science, sociology, etc.)
___bachelor's	_____
___some graduate study	_____
___master's	_____

3. As a student what was your favorite course?
   _____

4. As a student did you regard English grammar and composition courses as: (check one)
   ___easy ___fairly easy ___difficult ___very difficult

5. Have you ever taken a college journalism or creative writing course? (check one)
   ___no ___yes

6. Have you ever had formal or informal instruction in how to write for newspapers? (check one)
   ___no ___yes If "yes," describe_____

7. Do you average reading at least one editorial a day from the editorial page of a daily newspaper?
   (check one) ___no ___yes

8. What is the average time per day you spend reading a daily newspaper? (check one)

   ___none
   ___5 to 10 minutes
   ___11 to 20 minutes
   ___21 to 30 minutes
   ___31 to 45 minutes
   ___more than 45 minutes

9. What is the primary motivation for you to use newspapers in the performance of your role as a county Agricultural Agent? (check one)

___expected by superior
___effective as a teaching method
___requested by editor
___because it's traditional

10. Which types of magazines do you read regularly? (check those that apply)

___none
___family magazines (Look, Saturday Evening Post, etc.)
___general news magazines (Time, Newsweek, etc.)
___sports and men's magazines (Sports Afield, Esquire, etc.)
___farm magazines (Farm Journal, Progressive Farmer, etc.)

11. How many books other than textbooks and reference books have you read during the past 12 months? (check one)

___none
___one
___two
___three
___more than three

12. Do you regard writing in general (reports, letters, etc.) to be: (check one)

___easy
___fairly easy
___difficult
___very difficult

13. Do you regard writing for newspapers to be: (check one)
___easy
___fairly easy
___difficult
___very difficult

14. How many newspaper articles do you average writing? (check one)

____one or more a week
____one every two weeks
____one every three weeks
____one a month
____less than one a month

15. How important is the newspaper article as a teaching method as used by County Agricultural Agents? (check one)

____very important
____important
____not very important
____unimportant

16. Do you think County Agricultural Agents should use the newspaper article as a teaching method? (check one)

____more often
____about present level
____less often
____not at all

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